

80
am 371

LIBRARY
RECEIVED

AMERICAN NURSEYMAN

U. S. Department of Agriculture

Chief Exponent of the American Nursery Trade

Vol. LIX No. 10

MAY 15, 1934

15c per copy

IN THIS ISSUE

Checks Reveal Severe Winter Injuries

Report Effects of Past Winter on Hardy Plants

Green Manure Crops for Nursery

L. C. Chadwick Discusses Crops Used for Improving Soil

Prospective Outlook

W. C. Griffing Views Future from Forty Years' Experience

Southwestern Agreement

Marketing Pact Filed and Hearing at Dallas

The Current Season

W. N. Craig's Notes from New England

Herbaceous Perennials

Comments on Less Common Varieties

AMERICAN NURSEYMAN PUBLISHING CO.

508 S. DEARBORN ST.,

CHICAGO, ILL.

AMERICAN NURSERYMAN



The Mirror of the Trade

Chief Exponent of the Nursery Trade

F. R. KILNER, Editor

Published Semi-monthly by

AMERICAN NURSERYMAN
PUBLISHING CO.

508 S. Dearborn Street,
Chicago, Ill.

Telephone: Wabash 3194.

New York Office—67 West 44th Street
N. L. Huebsch Tel., Murray Hill 2-4871

Entered as second-class matter December 14,
1933, at the post-office at Chicago, Ill., under
the act of March 3, 1879.

SUBSCRIPTION PRICE, \$2.00 per year; out-
side the United States, \$3.00. Single copies,
15 cents.

ADVERTISING RATES on application. Forms
close on 10th of month for mid-month issue
and on 25th of previous month for first-of-
month issue. If proofs are wanted, copy
should be on hand one week earlier.

EDITORIAL communications on subjects
connected with nurseries, arboriculture or
other phases of commercial horticulture are
welcomed by the editor. Also articles on the
subjects and papers prepared for conventions
of nursery associations.

FOR COMING SEASONS.

The weight of the business depression on the mental views of nurserymen has wrought a change so great that one might say they have reached the reverse of the exuberant imagination which was characteristic of the boom period. Business has been poor for so long that some are shortsightedly neglecting the opportunities which will appear when times are much better. Individuals of long experience and far vision, however, realize that a slump is the precursor of a rise. Such a one is W. C. Griffing, who writes in this issue about the prospective outlook of the nursery and landscape business.

His comments should stir the unimaginative to see the demand for stock which will be created with the return of business more nearly normal than nurserymen have enjoyed for the past three seasons. Indeed, as the spring months pass, it does not take any imagination to see that shortages are more

than a remote possibility. They are present facts in some items, even though the demand this season cannot be called more than moderate.

As is pointed out by Mr. Griffing, it requires a period of years to develop the specimen stock which only the careful and competent nurseryman can provide. Scant scrutiny is needed to ascertain the moderate, and even small, quantities of this material in the nurseries in some sections. There is, consequently, a challenge to nurserymen to prepare confidently now so that they may have the requisite planting materials available in coming seasons.

WINTER INJURY.

As the spring season advances, more and more important appears the subject of winter injury, particularly in the eastern section of the United States. Some comments on the subject have already appeared in issues of The American Nurseryman, and interest in the subject has been manifested from many quarters. So the articles in the current issue are certain to be a welcome contribution to the information nurserymen desire on the subject. One from the east tells of the effects noted there, supplementing earlier notes from New England. Report on the fruit crops, indicative of what has happened in the middle west, gives additional brief but important data. Very timely in this connection are the notes on the winter effects on a considerable list of subjects in Ohio.

Altogether there is a considerable amount of information on winter killing, more than has been gathered together in one place before, and nurserymen will find the pages of this issue therefore worthy of special study and probably will wish to keep them for later reference, though it is seldom that a winter does so much damage as has the last one.

DUES PAID SHOW TRADE GAIN.

Improved conditions in the nursery trade this spring are noted by Charles Sizemore, Louisiana, Mo., secretary of the American Association of Nurserymen. In making his third call for dues before the convention at New York, July 17 to 19, Secretary Sizemore gives the following encouraging figures on association income during April, 1934:

Sixty-seven members have paid in \$1,825 this season, as compared with forty-one members' paying in \$780 by this time last spring. Income from ads has amounted to \$97.50 this year, compared with \$52.50 in 1933. April, 1934, thus shows a gain of sixty-three per cent in the number who have paid dues, 134 per cent in the amount paid and eighty-seven per cent in advertisements taken. Responses to requests for voluntary contributions to help out on code expenses have also been gratifying.

Direct reports, according to the secretary, from members in Oregon, Connecticut, Iowa, Missouri, Alabama, Michigan, North Dakota and other states further declare business much better than it was last spring.

NURSERYMEN IN FLORISTS' CODE.

Nurserymen who sell at retail will be subject to the provisions of the retail florists' code if present plans are carried out and the tentative florists' code discussed at a conference between retail florists and N. R. A. officials at Washington, D. C., May 4 is approved by General Johnson.

This provision was brought about by amending the definition of a retail florist in the code to include those who sell at retail trees, shrubs and decorative greens. The provision is to apply to retail nurserymen until such time as they have a code of their own.

INDEX TO ADVERTISEMENTS IN THIS ISSUE

Albert, Theo.	Rare Nursery Stock	11	Hogansville Nurseries	Peach Pits	11
American Bulb Co.	Bulbs, Seeds, Etc.	12	Howard Rose Co.	Roses	12
Archias' Floral Co.	Tritoma Pfitzeri	14	Jackson & Perkins Co.	Novelty Roses	10
Bernardin, E. P.	General Nursery Stock	11	Lakeview Ponds	Water Lilies	14
Bobbink & Atkins	Evergreens	11	Leonard & Son, A. M.	Nursery Tools	14
Burr & Co., C. R.	General Nursery Stock	11	Lovett, Lester C.	Privet and Berberis	11
Campbell-Hausfeld Co.	Sprayers	16	McHutchison & Co.	Nursery Supplies	13
Canterbury Nurseries	Boxwood	11	Naperville Nurseries	Lining Out Stock	11
Carpenter & Co., Geo. B.	Twine	16	National Band & Tag Co.	Plant Labels	13
Chase Bag Co.	Saxolin	16	National Nurserymen's Credit Bureau, Inc.		13
Chase Co., Benjamin	Nursery Labels	10	Norton Nurseries, A. L.	Pin Oaks	11
Des Moines Cement-Art Co.	Cement Stepping Stones	14	Premier Peat Moss Co.	Peat Moss	13
Evergreen Nursery Co.	Evergreens	11	Princeton Nurseries	General Nursery Stock	11
Felins Tying Machine Co.	Tying Machines	16	Shunk Mfg. Co.	Duster	16
Field Force Pump Co.	Sprayers	16	Shute & Co., E. L.	Peat Moss	13
Foley Greenhouse Mfg. Co.	Greenhouses	14	Storrs & Harrison Co.	General Nursery Stock	9
Foster Nursery Co.	Grapevines & Small Fruits	12	Verhalen Nursery Co.	Roses	14
Fremont Nursery	Roses	12	Washington Nurseries	Chinese Elm Seed	12
Gravely Motor Plow & Cult. Co.	Cultivators	15	Westminster Nurseries	General Nursery Stock	14
Hansen Nursery, Carl A.	Bush Cherry	14	White, Joseph J., Inc.	Franklinia	14
Herbst Bros.	Tree and Shrub Seeds	12	Wilson & Co., C. E.	Lining Out Stock	11
Hill Nursery Co., D.	Evergreen Specialists	11			

AMERICAN NURSERYMAN

[Registered U. S. Patent Office]

The Chief Exponent of the American Nursery Trade

The Nurseryman's Forte:
To Make America More Beautiful and Fruitful

Vol. LIX

MAY 15, 1934

No. 10

Checks Reveal Severe Winter Injuries

Effects of Past Winter on Shrubs in Northern New York
Reported by Donald Wyman, of Cornell University.

A recent check-up has been made in the Rochester parks and at Ithaca, N. Y., on the amount of winter injury which has actually been done to date. It must be understood at the start that all the injury from last winter is not apparent yet and will not be for some time. The only injury visible to date is that to the tops, and it is entirely possible that many plants are suffering from root injury which will not be apparent for some time yet.

Injury itself may be due to extremely low temperatures, to warm, drying winds (particularly in February and March) when the ground is yet frozen and to sudden drops in temperature. There may be one or a combination of these three reasons causing injury.

Carefully conducted experiments with fruit trees have definitely shown that fertilizing woody plants which have had wood killed is a dangerous practice when done in the spring. It would be better if a quickly available nitrogenous fertilizer were applied early in the summer, after the leaves have sufficient time to get a new start.

Present Treatment.

All dead material should be cut out of shrubs at once and possibly the remaining live branches given a moderate pruning.

Evergreens that simply have burned foliage and no wood killed could be fertilized immediately.

The water-conduction tissue in the twigs and trunks of woody plants is one of the first tissues to suffer injury, and this is the chief reason why fertilizers are not recommended for spring application on such plants. If fertilizers were applied, it would greatly increase the leaf area and this in turn would need a larger water supply. Since injury has occurred, the water-conducting tissue has been decreased and cannot supply the increased leaf area. The result is that the plant is again injured or else dies. If fertilizer is not applied until early summer or, better still, until the following year, the plant is given sufficient time slowly to form new water-conducting tissue because, due to a killing back and a moderate pruning, the leaf area has been reduced at the start.

The following lists are interesting. They should be taken only at their face value. If a plant is included in the group which has been killed to the

ground it does not mean that similar plants have been killed all over New York. It does mean, however, that the plants observed in Rochester and Ithaca were killed and that more or less injury might be reasonably expected in other similar localities.

KILLED TO GROUND.

Berberis aggregata, 4-ft.
Berberis buxifolia
Berberis diaphana, 5-ft.
Berberis Julliana, 4-ft.
Berberis macracantha, 8-ft.
Callicarpa purpurea, 4-ft.
Celastrus angulatus
Celastrus articulatus
Celastrus paniculatus
Cercis chinensis, 10-ft.
Clerodendron, 15-ft.
Cotoneaster frigidus, 5-ft.
Cotoneaster Henryi, 3-ft.
Cotoneaster racemiflora, 6-ft.
Cytisus scoparius, 3-ft.
Deutzia gracilis, 3-ft.
Deutzia scabra, 6-ft.
Kerria, 4-5-ft.
Ligustrum ovalifolium, 8-ft.
Lonicera fragrantissima, 7-ft.
Lonicera Standishii, 6-ft.
Lonicera syringantha
Mahonia aquifolium, 3-ft.
Mahonia Wagneri, 3-ft.
Rhodotypos kerrioides, 5-ft.
Spiraea Reevesiana, 5-ft.
Styrax japonica, 15-ft.
Symphoricarpos Chamaejasne, 4-ft.

BADLY INJURED.

Deciduous Stock.

(Branches killed back several feet)

Berberis verruculosa, 3-ft.
Buxus types
Coronilla emeroides, 3-ft.
Cotoneaster horizontalis, 1-ft.
Cotoneaster microphylla, 2-ft.
Cydonia japonica, 3-4-ft.
Davidia involucreata, 15-ft.
Evonymus patens, 5-ft.
Hedera helix (often to ground)
Ilex crenata, 5-ft.
Kolkwitzia amabilis, 6-ft.
Ligustrum Itoa Regelianum, 5-ft.
Lonicera Henryi
Lonicera japonica Halliana
Lonicera Maackii podocarpa, 8-ft.
Lonicera trichosantha, 5-ft.
Myrica cerifera, 5-ft.
Photinia villosa, 5-ft.
Pieris japonica, 3-ft.
Spiraea prunifolia, 5-ft.
Spiraea Thunbergii, 4-ft.
Roses
Symphoricarpos vulgaris
Viburnum fragrans, 5-ft.
Viburnum rhytidophyllum, 5-ft.
Weigela, 4-5-ft.
Wisteria

Evergreen Stock.

(Severe burning of foliage)

Abies cephalonica, 15-ft.
Abies Nordmanniana, 20-ft.
Cephalotaxus, 5-ft.
Chamaecyparis obtusa, 5-15-ft.
Cryptomeria, 15-ft.
Picea polita, 6-ft.
Pinus Thunbergii, 20-ft.
Taxus baccata, 4-ft.
Taxus baccata repandens, 2-ft.

FLOWER BUDS KILLED.

(In exposed situations)

<i>Asaleas</i> (deciduous)	<i>Pieris floribunda</i>
<i>Benzoin festivale</i>	<i>Pieris japonica</i>
<i>Cydonia japonica</i>	<i>Rhododendron hybrids</i>
<i>Foraythia types</i>	<i>Wisteria</i> (probably)
<i>Magnolias</i> (varying degrees)	

In the lists have been given the approximate heights of the plants observed. All observations were made on well established plants which made a normal growth last year.

Interesting Lessons Learned.

Highly interesting lessons can be drawn from our experiences last winter. In the first place, forsythias and Japanese quince are only blooming close to the ground where there was a protective covering of leaves or snow. *Cotoneaster horizontalis* branches are dead above a straw mulch and very much alive below it.

There is evidence everywhere on just what the sun and drying winds do to evergreens during the months of February and March. Nurserymen should always point this out when talking about care for evergreens next winter.

Again, as in 1918, many plants have proved their inability to withstand the freak climate of this section.

One of the most valuable things nurserymen can do now is to keep a sharp lookout for certain varieties of plants which were not injured, where others in the near vicinity were. One of the best illustrations of this is the forsythia collection in Highland park, Rochester. All the flower buds on all the forsythias have been killed except on one plant. This plant under the same conditions and in the same bed as the others was in normal full bloom May 6. It is a little-used variety, *F. europaea*, does not have as many flowers as *spectabilis*, nor the drooping form of *suspensa*, but, nevertheless, it is the only one to bloom this year. (Whether or not *F. ovata* is in this collection is not certain.)

All is not said yet on winter injury. Every nurseryman should make his own observations and lists for his own situation. A comprehensive study of this whole problem will prove interesting.

THE Linville Nurseries, Inc., has resumed operations at Linville, N. C., under the direction of Arthur Green.

A SALES yard and display gardens have been opened near Mentor, O., on route 20, by John E. Venable, formerly in business at New Lyme, O. Mr. Venable has built a residence at the new location, along with an office and packing buildings. He will feature patented roses and water lilies in his gardens this season.

Winter's Effect in Ohio

Third Annual Report on Hardy Plants at Columbus Indicates Season's Damage

The third annual May report on the hardness of ornamental plants on the grounds of the Ohio State University, Columbus, has particular reference to evergreens. Last summer's drought and the dry condition of the soil during the fall and winter months were also partly responsible for present conditions.

One lot checked consisted of plants that had completed their third winter in a garden that receives some protection from the sweeping winds from the north and east and is protected on all sides by a low shrubby border. The section is exposed to full sun the greater part of the day. No protection was given the plants during the winter. A light mulch of peat remains on the beds the year around.

Garden Planting.

The findings with these plants were as follows:

Arctostaphylos Uva-ursi—Slight bronzing of the foliage, but no killing back.
Asalea dahurica mucronulata—No injury. Plant nearly in flower.
Asalea *Ilmoudgiri*—Foliage badly burned. Flower buds killed.
Asalea ledifolia—Slight burning on old plants. Small plants set last spring burned badly.
Berberis lictifolia (*Mahoberberis Neubertii latifolia*)—Completely defoliated. Young shoots killed back about two inches.
Berberis Julland—Almost defoliated, a few leaves remaining near the base of the plant. The few leaves remaining at top of shoots were badly burned. Branches were killed back about one-fourth of their length.
Berberis Wilsonae—Complete defoliation. One-fourth to one-third of new growth killed back.
Buxus microphylla japonica—Only slight burning of the foliage and only the tips of young growth killed back.
Buxus sempervirens—Older plants badly bronzed; leaves on young shoots burned and shoots partly killed back. Smaller plants burned more severely.
Buxus sempervirens arborescens—Slightly less burning than on the species.
Buxus sempervirens suffruticosa—Only slightly burned, mostly on south and west sides. No killing back of the branches.
Cotoneaster adpressa—No injury. This is the third winter that *C. adpressa* has proved more hardy than *C. horizontalis*.
Cotoneaster apiculata—No injury.
Cotoneaster Henryana—Leaves badly burned and have mostly dropped; new leaves are appearing. Young twigs only slightly injured.
Cotoneaster horizontalis—Branches killed back from one-third to two-thirds.
Cotoneaster horizontalis Wilsonii—Branches killed back but little. These plants were more protected than those of the species.
Cotoneaster microphylla—Small plants set last spring killed to the ground.
Daphne Cneorum—No injury; nearly in flower.
Evonymus japonica—Killed to the ground.
Evonymus japonica microphylla—Killed to the ground.
Evonymus patens—Completely defoliated; new leaves about one-third normal size. No injury to the branches.
Evonymus radicans—Ground cover. No injury. Bushy plants ascending to twelve to fifteen inches show slight burning on the tips of young shoots.
Evonymus radicans acuta—Ground cover. No injury.
Evonymus radicans Carrierei—Old foliage retained and shows no injury; new foliage about one-third grown. A better plant than *Evonymus patens*.
Evonymus radicans colorata—Ground cover. Tips of young ascending branchlets killed.
Evonymus radicans minima—Ground cover. Terminal two to three inches of young shoots killed.
Evonymus radicans variegata—Ground cover. Ends of young shoots show slight injury.
Evonymus radicans vegeta—Bushy plants. No injury.
Hedera helix—Ground cover. Where used in full shade there was little injury to the foliage. Where used in partial shade or full sun the foliage was burned badly, and the young, vigorous-growing stems of last year killed back from six to thirty-six inches.
Iberis sempervirens—Foliage somewhat burned.
Ilex crenata microphylla—Only slightly injured. A few of the terminal shoots are killed and the foliage burned. More burning on young plants.
Ilex glabra—No injury. In as good condition as any of the broad-leaved evergreens.

Ilex opaca—No injury on two plants; slight burning on one plant.
Kalmia angustifolia—No injury.
Kalmia latifolia—No injury.
Leucothoe Catesbaei—Leaves on ends of young shoots bronzed or burned slightly. No injury to the shoots.
Lonicera nitida—Entirely killed; 1-yr. plants from cuttings.
Mahonia Aquifolium—Foliage badly burned; more on the full-foliage types than on those with glossy green leaves. No killing of the stems.
Mahonia Beallii—Foliage badly burned. No killing of the stems.
Mahonia nervosa—Not so badly injured as the other mahonias. Foliage burned to some extent. No injury to the stems.
Pachistima Canbyi—No injury.
Pachysandra terminalis—As ground cover in broad-leaved evergreen beds with slight shade, the foliage is badly burned.
Pieris floribunda—No injury. In flower April 20. One small plant set last summer showed severe burning.
Pyracantha coccinea Lalandii—Slight burning of the foliage, but not enough to be objectionable.
Rhododendron carolinianum—Most plants show no injury. Flower buds in good condition.
Rhododendron obtusifolium—No injury.
Rhododendron Catawbiense—Three varieties. No injury. Flower buds in good condition.
Rhododendron maximum—No injury.
Tecumserium chamedry—Branches killed to the ground.
Viburnum rhytidophyllum—Small plants 2 years from cuttings. Leaves badly burned. Twigs slightly injured.

Narrow-leaved Evergreens.

Another lot checked consisted of narrow-leaved evergreens. These plants are fully exposed to the sun, but protected by low windbreaks on all sides. The findings were:

Abies concolor—Small plant, 2½-ft.; no injury.
Abies Fraseri—No injury.
Chamaecyparis Lawsoniana—Burned rather badly.
Chamaecyparis nootkatensis—Slight burning of the foliage on the tips of the branchlets.
Chamaecyparis obtusa—No injury.
Chamaecyparis obtusa Crippsii—No injury.
Chamaecyparis obtusa gracilis—No injury.
Chamaecyparis obtusa lycopodioides—No injury.
Chamaecyparis obtusa nana—No injury.
Chamaecyparis pisifera—Slight browning of the foliage at the ends of the branchlets.
Chamaecyparis pisifera aurea—More injury than with the species.
Chamaecyparis pisifera filifera—No injury.
Chamaecyparis pisifera filifera aurea—No injury.
Chamaecyparis pisifera plumosa—Foliage at the ends of the branchlets burned rather badly.
Chamaecyparis pisifera plumosa aurea—Same as foregoing.
Chamaecyparis pisifera squarrosa—Slight burning of the foliage.
Cryptomeria japonica—Protected. Foliage severely burned. Young branchlets killed back six to twelve inches.
Juniperus—No injury to the junipers except a few of the *J. communis* forms, especially the Polish juniper, which shows a slight burning at the tips of the branchlets.
Libocedrus decurrens—Young plant, 2-ft.; no injury.
Picea—No injury to the spruces.
Pinus—No injury of importance to the pines. A few smaller plants in exposed situations show some browning of the foliage.
Taxus baccata fastigiata—A slight burning of the foliage on the south and west sides.
Taxus baccata repandens—No injury.
Taxus baccata Washingtonii—Same as for *T. baccata fastigiata*.
Taxus cuspidata—No injury to any of the Japanese yews except slight burning of a few plants of *T. cuspidata nana*.
Taxus media Hickii—No injury.
Tsuga occidentalis—The commoner varieties of the American arborescens show no injury except a slight burning of the foliage on the branchlets of the following varieties: *Columbia*, *Ellwangeriana*, *ericoides* and *Vermeyana*.
Tsuga orientalis aurea nana—Some burning of the foliage on the south and west sides.
Tsuga orientalis Bakeri—No injury.
Tsuga orientalis elegantissima—No injury.
Tsuga orientalis texana glauca—No injury.
Tsuga plicata—Slight bronzing of the foliage, but no other injury.
Tsuga plicata strobilifera—No injury. Probably the best of the arborescens for ornamental planting.
Tsuga canadensis—No injury.
Tsuga caroliniana—Plants badly damaged,

AMERICAN NURSERYMAN

nearly dead. Probably due more to the past dry summers than to winter injury.

Mixed Group.

Various evergreen and deciduous plants located in the gardens and about the campus of Ohio State University provided another group. The plants were given no protection over winter.

Abelia grandiflora—3-ft.; plants killed nearly to the ground.
Buddleia Davidii—Killed to the ground. Plants should be cut to the ground each year.
Callicarpa purpurea—Stems killed back about two-thirds of their length. Well to cut this plant nearly to the ground each year.
Clerodendron trichotomum—Young plants; killed to the ground.
Cotoneaster—Most of the deciduous cotoneasters show no winter injury.
Cotoneaster salicifolia foecosa—Plant mostly defoliated. No injury to the stems.
Deutzia scabra—Slight killing back of the terminal shoots.
Foraythia—In spite of the cold winter the foraythias are flowering more abundantly this year than they have during the past two years.
Hedera helix—Growing on buildings. Considerable variation exists. Some injury occurring in both the burning of foliage and the killing back of the younger shoots in most cases. Little difference as to the side of the building on which it is planted.
Hydrangea quercifolia—No injury.
Hypericum patulum Henryi—Branches killed to the ground. This plant can well be cut to the ground each year.
Laurocerasus caroliniana—Plants killed to the ground.
Magnolia glauca—Plant badly injured, but undoubtedly due, partly at least, to the past dry summers.
Magnolia grandiflora—Nine plants 3 to 4-ft. Leaves dead on all, and with most the branches are killed back about halfway.
Magnolia Soulangeana—Plants in flower April 10. Not over twenty per cent of the flower buds alive on most of the plants. A few in more protected situations are flowering better.
Mahonia japonica—Foliage badly burned.
Prunus incisa—No injury. Flowering April 15.
Prunus naden—No injury. Flower buds not injured.
Prunus Shirofugen—No injury. Flower buds not injured.
Prunus subhirtella pendula—No injury. Flowering April 20.
Pyracantha coccinea—4-ft.; plants almost defoliated. No injury to branches.
Rosa Wichuriana—Bank cover. Young shoots killed back badly, about one-half of new growth.
Stephanandra flexuosa—Young shoots killed back about one-third.
Viburnum Carlesii—No injury. Now in full bud.
Viburnum rhytidophyllum—4-ft.; foliage badly burned.
Vitex Agnus-castus—Branches killed to ground. This plant should be cut to the ground each year.

FRUIT TREE INJURY.

Illinois Suffers Less than East.

Illinois peach growers fared better than those of the eastern states insofar as damage to orchards as a result of subzero weather during the past winter is concerned, it is reported by Dr. M. J. Dorsey, chief in pomology at the college of agriculture, University of Illinois, Urbana.

Although there was severe injury to the peach buds in Illinois, no damage was done to the trees. In fact, in some of the more favored locations, sufficient buds survived to produce small crops of varying percentages. In the east, however, all fruit buds were killed by the freezing temperatures, and a great many trees were killed or damaged badly, it is said.

The Illinois peach crop has been estimated at about 800 carloads, as compared with approximately 8,000 cars in the bumper season of 1931. As was anticipated, the apple crop is likely to be light in Illinois, owing to the defoliation and unfavorable weather during fruit bud formation last year. Red raspberries suffered considerably from winter kill, but the cherry and plum buds are believed to have survived comparatively well. Unfortunately, in some parts of the state cold nights during the last week or ten days of April

(Concluded on page 8.)

Green Manure Crops for Nursery

L. C. Chadwick Discusses Crops Used for Improving Soil,
Their Management and the Beneficial Results Obtainable

A discussion of the use of green manure crops in the nursery soil improvement program is timely, since many nurserymen will be engaged in planting crops for this purpose during the next four weeks. An attempt will be made in this article to discuss briefly such vital points as the beneficial effects one may expect from using green manure crops, some of the crops that may be used for this purpose and the management of such crops.

A great many benefits may be obtained by the use of green manure crops, among the most important of which may be mentioned the addition of organic matter, the addition of nitrogen and other elements favoring plant growth, the conservation of soluble compounds, the effect on bacterial action and, finally, improvement of the subsoil.

Organic Matter Near Surface.

Most nurserymen realize the importance of maintaining a liberal quantity of organic matter in the soil. Where its supply is adequate, crops usually grow much more luxuriantly, the need of frequent cultivation is somewhat reduced and plants are easier to handle. Since the organic matter is confined to the surface soil, the removal of a block of balled evergreens removes a large quantity of humus, which must be replaced before the soil is again in good condition to produce crops.

In the past, but to a lesser extent at the present time, farm manures were used to increase the organic matter of the soil. At present, however, the scarcity and cost of farm manure often make it unprofitable to use. Green manures are gradually finding their legitimate place in the production of nursery stock, since they add large quantities of green vegetable matter and, if the proper crops are chosen, greater quantities of nitrogen than the average farm manure. If good growth of the green manure crop is obtained, it will usually add between five and ten tons of green vegetable matter per

acre. Seventy-five to eighty per cent of this tonnage is water, and twenty to twenty-five per cent, dry matter, which may contain as much as four per cent nitrogen.

Legumes for Nitrogen.

The amount of nitrogen added to the soil by such a way will depend upon the crop chosen, the yield, maturity and various other factors. Leguminous crops will, of course, add more nitrogen than nonlegumes. As a rule, a leguminous crop well grown will add 100 to 150 or more pounds of nitrogen per acre. This would be equivalent to an application of ten to fifteen tons of average farm manure.

Green manure crops also have some tendency to increase the availability of other fertilizer ingredients, such as phosphorus and potassium. This is accomplished by the roots of the plants absorbing otherwise unavailable materials which, later when the crop is turned under, are returned to the soil in a more available form.

Green manure crops may be effective in the conservation of soluble compounds in the soil. Mineral elements, especially nitrate nitrogen, may be lost from the soil through drainage water in considerable quantities if the soil is fallow during the summer months. Growing crops will absorb much of this material, which may be returned to the soil when the crop is plowed under.

Aid to Bacteria Growth.

It is commonly considered that crops will grow better when the soil is adequately supplied with organic material. This material is, supposedly, an ideal medium for the growth of the bacteria that are responsible for converting organic nitrogen into ammonia and nitrate nitrogen. This may be partially discounted by the fact that in recent years excellent crops have been produced in cultural media free from any organic matter.

Subsoils may be greatly improved through the growth of green manure

crops, especially legumes. Such crops should not be judged by the quantity of material produced above the ground alone. Tests have shown that as much as thirty-three and one-half per cent of the total plant of alfalfa or red clover is in the roots. Sweet clover, vetch and soy beans run twenty-six and one-half per cent, seventeen per cent and twelve per cent, respectively, while rye has only about five per cent of the total plant in the roots. Of equal importance is the fact that with cereals approximately one-half of the total root system is in the first ten inches of soil, while with alfalfa and probably other legumes, as much as forty per cent of the root system is below thirty inches. This extensiveness of roots is important in the distribution of fertilizers. It has long been supposed that considerable quantities of phosphorus and potassium applied to the surface of the soil never reach the tree roots. Deep-rooting legumes may act in taking some of these elements from near the surface to the lower root zones.

Data on Recommended Crops.

The crops most useful to nurserymen in the northern and midwestern states for green manures are soy beans, sweet clover, mammoth red clover, alfalfa, vetch and rye. The last two are frequently used together. In place of a lengthy discussion of the nature and management of these crops, pertinent information is given here in tabular form, as a convenient and quick reference.

In addition to the information contained in the table, a few further statements need to be given. Since the quantity of nitrogen a given green manure crop may add to the soil depends on so many factors, the figures in the table should be taken to represent a reasonable average under fair conditions of growth. Special attention may well be given to the possibility of using a crop of rye and vetch to follow soy beans or other legumes. A green manure crop used at this period

GREEN MANURE CROPS*

Crop	Duration	Minimum soil acidity for favorable growth	Approximate per cent of nitrogen in tops and roots at time plowed under	Amount of seed per acre	Planting season	Time to plow under	Notes
Soy Beans	Annual	pH 5.0	2.65	1½-2 bu.	May-June	When beans in pods are half-use Manchou. If seeded mid to late June, use Wilson. To poor soil, add 300 lbs. complete fertilizer per A.	
Sweet Clover.....	Biennial	pH 6.5	3.75	10-12 lbs.	Early spring with grain	Plow under following spring of nitrogen decreases rapidly if plowed April 15 to May 1 under at later date.	Grows well on poor soils. Percentage of nitrogen decreases rapidly if plowed under at later date.
Mammoth Red Clover	Biennial	pH 5.5	2.25	8-12 lbs.	Early spring with grain	Plow under following spring about May 1	Requires 2-3 weeks longer to mature than red clover.
Alfalfa	Perennial	pH 6.5	2.65	10-12 lbs.	Early spring or late summer	Hay 3-4 yrs.; then plow under in fall or early spring	Well drained soil best. When plowed under as directed, nitrogen mostly in roots. Tops contain greater quantity if present.
Hairy Vetch	Winter Annual	pH 6.5	3.75	3-4 pks.	Sept. 1 to 15	Mid-May	Sandy, well drained soil best. When plowed under as directed, tops have about 4% nitrogen and roots 2%.
Rye**	Winter Annual	pH 4.5	1.75	1½-2 bu.	Sept. 1 to 15	When 9-10 ins. high, about mid-April	Percentage of nitrogen reduces rapidly if plowed under later.

*Recommendation based mostly on Ohio conditions.

**A mixture of rye and vetch may be used as a green manure crop to follow soy beans. Use a mixture of 60 pounds of rye and 20 pounds of vetch and seed early in Sept. at the rate of 5 pks. per acre. Plow under about May 15-30.

may be beneficial in a number of ways, some of which have already been mentioned. It will absorb some of the fertilizer elements which might otherwise be lost by leaching, it prevents considerable washing of the soil during the winter and spring months and when plowed under in the spring in time for planting of nursery crops it will add considerable humus and nutrient materials to the soil.

Growth Factors.

The extent of growth of green manure crops will depend largely upon the tilth and richness of the soil. For legumes especially the soil should be in fine tilth and should contain enough plant food to start a quick active growth. On poor soils it will be well to add a complete fertilizer, low in nitrogen, at the rate of 300 to 500 pounds per acre. For the crops that thrive only in slightly acid or alkaline soils (pH 6.5-8.0), it will be well to add lime if the soil is naturally highly acid. The additions of lime should be based upon actual tests to determine its necessity.

If leguminous crops are used on a field for the first time, inoculation may be advisable or necessary. This is accomplished by applying 200 to 500 pounds of soil that has previously grown legume crops to an acre of the new field, or through the use of pure cultures of the necessary bacteria applied to the seed.

In the decomposition of organic material considerable nitrogen is used by the bacteria doing the work. If the quantity of nitrogen in the crop is less than two per cent at the time it is plowed under it will be used in the decay of the organic matter, leaving little available for the following crop. Because of this, it may pay with those crops such as rye, which are low in nitrogen, to add some inorganic nitrogen to the soil. The rapidity with which the organic matter plowed under will decompose will depend upon the crop and soil conditions. Decomposition will be most rapid if the plants are plowed under while still quite succulent and when the soil contains considerable moisture and heat. When nursery crops are to follow green manure crops, it is desirable to turn the green crop under two to four weeks before planting time. This will allow decomposition to be at least partially accomplished at the time of planting.

ANNUAL PASADENA SHOW.

The twenty-ninth annual Pasadena spring flower show was held in the Civic Auditorium at Pasadena, Cal., opening April 14. In the number of entries and point of attendance it surpassed any previous exhibition.

The sweepstakes prize for commercial growers went to the Coolidge Rare Plant Gardens, Ltd. The Jannoch Nurseries won with roses and Howard & Smith, Inc., Montebello, with flowering plants.

The panorama presented upon entering the auditorium was that of a vast flower garden, all of the exhibitors having space in which to display their plants and flowers. Plants for decorating the foyer and annex were furnished by the Jannoch Nurseries, the Coolidge Rare Plant Gardens, Ltd.; Nelson's Nurseries; Husband's, and the Crown City Nursery.

Undoubtedly the most picturesque exhibit was that of the Edward H. Rust Nurseries, which had a rustic pergola

twined with ivy, with many flowering plants banked at the base. At the rear was a panorama of the bay and island of Catalina, off the coast of southern California. In the pergola was a potter at work, surrounded by a variety of the colorful Catalina pottery. Two Mexican troubadours were on hand, strumming their guitars. Many pots of the vivid *strelitzia* were shown.

The J. D. Snodgrass Nursery had a richly fertilized plot, with a border of tiny flower pots. In the center of the bed was a big mound of pansies, while other beds held pink phlox. An interesting rock garden was planted to succulents, ornamentals and flowering plants.

The Jannoch Nurseries, specializing in roses, had a big plot with a border of low bushes, while the major portion of the ground was given over to handsome tree roses of red, pink, yellow and white.

The novelty of the show was the tree geraniums shown by Adolph Laesser. Many of the well known varieties were cut to a single stem, which, at a height of three or four feet, branched out into a profusion of flowers and foliage.

Howard & Smith, Inc., specialized in amaryllises, displaying many potted plants with big red or white blooms, as well as interesting collections of pansies and Transvaal daisies.

Among the other commercial exhibitors were the Campbell Seed Store, which featured potted plants enriched with its plant food; A. W. Pooley, Transvaal daisies; the Flower Pot, potted plants and wire plant holders; the Soldena Gardens, succulents; the Wiltshire Cactus Gardens, blooming cacti; Armacost & Royston, Inc., Los Angeles, roses; El Mirador Gardens, a rock garden; Wilson's Begonia Garden, Huntington Park, many novel begonias; the Wonder Flower Garden, huge petunias and pansies, and Fred Morgan and Roscoe Baldwin, ferns.

BURR STRIKERS BACK.

After about a week of idleness, workers who struck at the C. R. Burr & Co. nursery, Manchester, Conn., returned to their jobs May 1. Some wage adjust-

AMERICAN NURSERYMAN

ments were made, but the previous scale held in most instances. About ten did not resume their positions. Immediate efforts were made to clean up the shipments delayed by the strike.

At the nursery of C. R. Vanderbrook & Son, Manchester, where the strike move spread from the Burr establishment, the greater part of the shipping was completed, and what was left could be handled by those who remained at work.

GIVES RADIO TALKS.

W. C. Daniels, Charlotte, N. C., secretary-treasurer of the Southern Nurserymen's Association, is conducting a 15-minute program, entitled "Garden Topics," each Monday over station WBT, Charlotte. WBT is a superpowered station, using 50,000 watts, and is the key station for the Columbia Broadcasting Co. in the south. Many inquiries are received each week by Mr. Daniels, these being answered over the air.

NUT CROP URGED IN ILLINOIS.

High-quality nuts constitute one of the few crops in which there is not a surplus, and many Illinois farmers could well afford to devote a small acreage to their production, declares R. S. Marsh, horticultural extension specialist of the college of agriculture, University of Illinois, Urbana, Ill. To assist farmers in doing this he is holding a series of nut propagation demonstrations in fourteen Illinois counties.

TOWSON'S AZALEA GARDENS.

With the advent of the spring season, the lovely azalea and rhododendron gardens of Towson Nurseries, Inc., Towson, Md., again become the Mecca of flower lovers. Reproduced on this page is a photograph of the firm's unusually attractive display grounds containing Japanese and native azaleas and hybrid Himalayan rhododendrons, for which the nursery is far-famed. These display gardens bring thousands of visitors every season.



Gardens of Towson Nurseries, Inc., Mecca for Thousands in Spring.

Prospective Outlook

W. C. Griffing, of Griffing's Nurseries, Beaumont, Tex., Views Future from Forty Years' Experience

Having spent all or the major part of my life in the production and sale of nursery stock, a period of about forty years, I can feel the pulse of the nursery trade development with ease. I can say that there has been a general increase during the time of my experience, even though it has been retarded at times.

Earlier in my experience, the growth and development of the nursery business were measured more or less by the planting of commercial fruit orchards. However, as time has gone on, landscape development has taken a foremost place in the nurserymen's business. I can recall when roses and a few flowering shrubs made up the major part of home plantings, but with the desire for better homes and more beautiful grounds, the nurseryman has been called upon for a much greater variety of trees and shrubs.

Part of Modern Building Plans.

The development of landscaping has made a remarkable growth during the past ten or fifteen years, especially in the south. In fact, it goes hand in hand with the building of larger and better homes and has become a necessary part of building. It was regarded as a luxury to have the grounds landscaped a few years ago, while now it is a "necessity" to have the home and grounds complete. I should say, off-hand, I know no other business that had its beginning in recent years which has grown more rapidly than has the sale of nursery stock for landscaping.

At the President's conference on home building and home ownership, the topic of landscape planning and planting occupied a prominent place in the discussion. In fact, in the report of this conference, released in December, 1931, the following is given, "The expenditure for planting of any lot of an amount equal to five per cent of the cost of the dwelling will add twenty per cent to the sales value of the property."

Public Plantings, Too.

This same percentage of increased values of landscaping is not limited to home grounds, as public properties such as school grounds, church yards, hospital grounds, courtyards, city hall grounds, cemeteries, parks and playgrounds are all greatly enhanced in beauty and value by the planting of trees and shrubs. The desire to create better environment about these public places has increased as the social workers saw the real need and effects. The national government has created during the past few years many conservation camps for the protection and improvement of national parks, and many states have followed with the establishment of state parks and playgrounds. Besides, city recreation parks have been established in practically all places. All these are the primary outgrowth of the desire and demand of our people for a better environment and of greater appreciation of the beauties of nature about us.

With the development of more auto-

mobile travel and building of more highways, I have realized the need for conservation of natural trees and shrubbery along the paths, as well as for the additional planting of ornamentals and shade trees along the roadsides. Considerable work has been done on this, and state by state the work is being taken up. Only last fall, a national appropriation of \$6,000,000 was set aside for roadside landscaping, which marked the first step taken by the national government.

Unlimited Future.

This national appropriation was followed by many state appropriations, those of southern states, in which I am primarily concerned and with which I am familiar, being important. I should say that this marks the beginning of a big landscaping program destined to continue over an unlimited period.

The florists often advertise "Flowers for the living," which expresses our

findings in furnishing landscape materials for the larger estates being built for the elderly business man. He is building his estate for immediate enjoyment. Therefore to enjoy the trees, shrubs and flowers to the fullest now, he must use well developed specimens that the nurserymen have grown and developed for just such purposes.

Specimens Desired.

I have discovered this to be the desire of clients of this type and, naturally, have found a ready market for the larger specimen trees and shrubs for immediate effects. It takes from five to fifteen years or more for the nurseryman properly to develop these specimens in his nursery. Therefore, he must plan years ahead in planting. With the gradual increase of building development and the demand for landscape materials, I contemplate a shortage of good specimen trees and shrubs during the next few years.

The slow development of real estate after 1929 was seriously felt by the nurserymen, but now that more interest is being shown in building and development, I can readily feel the increasing demand for landscape materials, which means continued better trade for the landscape business, as well as the nursery business.

Southwestern Agreement

Trade Hearing at Dallas on Marketing Agreement Recently Filed at Washington

The regional marketing agreement recently filed at Washington by southwestern nurserymen was the subject of a hearing at Dallas, Tex., May 7, attended by members of the trade from Texas, Louisiana, Oklahoma and Arkansas. Little headway was made during the day, but at the close of the session announcement was made that, the president and a quorum of the directors being present, they had decided to hold the annual convention of the Southwestern Association of Nurserymen in June, instead of September, in order that a representative gathering of nurserymen might be brought together within five weeks to determine just what the trade in that area desires incorporated in a trade agreement.

The southwestern convention will be held at Tyler, Tex., June 13 to 15.

Group meetings will be held in advance of the convention to determine just what the pecan growers, or the rose growers, for example, desire included in the agreement. Sponsors were appointed for these groups by Edward Teas, Houston, chairman of the regional planning committee, who presided at the meeting. These sponsors are as follows: Rose growers, A. L. Thompson and J. A. Bostick, both of Tyler; pecan growers, W. V. Henson, Tyler; growers of ornamentals, Eugene Howard, Austin; fruit tree men, C. C. Mayhew, Sherman; landscapers, J. O. Lambert, Jr., Shreveport; lining-out stock, Lige Glass, Farmersville; citrus fruits, Mr. Potts, of Baker-Potts Nursery, Harlingen; subtropical stock, A. A. Hunt, of Jungle Gardens, Avery Island, La.

Object to Restrictions.

The hearing at Dallas was attended by less than two score nurserymen and

several state officials. After presentation of the agreement, some objections were raised. For instance, the east Texas rose growers have experienced a shortage this season, and a reduction of acreage does not seem reasonable in view of a prospective scarcity the coming season.

Some criticism of the Southwestern Nurserymen's Cooperative Association was heard, but the point was brought out that the association has no connection with the marketing agreement presented at Washington, other than that it had been sponsored by the cooperative's directors.

Within two weeks or so, another meeting is expected to be called by Chairman Teas to report on progress and lay further plans.

Several nurserymen were appointed to gather information and arouse interest in specified cities or districts, to assist Eugene Howard, sponsor of the ornamental group; these men are C. C. Mayhew, Sherman; Lee Mosty, San Antonio district; W. C. Griffing, Beaumont; Edward Teas, Houston; J. T. Foote, Oklahoma City; Edward Baker, Fort Worth, Dallas, Denton; J. O. Lambert, Jr., and W. E. Anderson, Louisiana; J. A. Bostick and A. L. Thompson, east Texas. Probably others will be added, including another for Oklahoma and one or two for Arkansas.

Features of Agreement.

The tentative marketing agreement for the southwest was prepared by E. S. Hamilton, Houston, general counsel for the recently organized Southwestern Nurserymen's Cooperative Association, in accordance with the A. A. A. Individuals in the group, representing growers of ninety per cent

of the nursery stock in Texas, Oklahoma, Arkansas and Louisiana, it is said, are now being contacted to sign the agreement.

Following are some of the important features of the new agreement:

Under the section devoted to definitions, nursery stock is defined as "trees, shrubs, roses, vines, woody plants and herbaceous perennials in all stages of growth, when grown for sale or use either for ornamental, shade, fruit, reforestation, erosion control or roadside improvement purposes."

An important article relating to production activities reads as follows: "During the fall of 1934 and the spring of 1935 (combined) each grower, according to his individual judgment as to variety, shall propagate and plant at least twenty-five per cent less stock than the average of his yearly planting in the fall and spring of the year 1931-32, 1932-33 and 1933-34. Curtailment of production and planting thereafter, if any, shall be subject to determination by the control committee in the light of the statistics of production and distribution furnished as herein provided."

Reports on Business Required.

Reports to the Secretary of Agriculture from time to time by the growers are provided for, and a clause makes mandatory the keeping of books and records to reflect the financial transactions of each firm and its financial condition.

The grade standards adopted by the American Association of Nurserymen are accepted, although these may be supplemented or altered by a rule of the control committee with the approval of the Secretary of Agriculture.

The section on credits sets forth that wholesale terms of sale shall not exceed sixty days net, or more than a cash discount of two per cent for payment within ten days from the date of invoice and shipment, or one per cent thirty days.

Open Price Clause.

The agreement contains an open price clause, requiring each grower, within thirty days from the effective date of the code, to file at his place or places of business and with the members of the agent of the control committee of the region in which his place of business is located a complete list or lists, individually prepared by him, showing the true price at which he will sell. Provisions for later changes in prices are made.

It is stated, also, that the provisions of the open price clause may be eliminated or altered, by supplement, either in whole or in part, at any time, by the control committee, subject to approval by the Secretary of Agriculture.

Nine unfair methods of competition are mentioned, these following much in line with those appearing in the other horticultural trade codes.

Members of the control committee, the chief authority provided for in the agreement, are to be elected each year before August 1 by the growers. This committee will consist of nine growers, who shall be approved by the Secretary of Agriculture, two from Louisiana, Oklahoma and Arkansas and three from Texas. Each member of the committee is to be chosen by a weighted majority vote of all the growers, and for such purpose each grower shall be entitled to one vote.

Among the duties of the control com-

mittee will be the investigation of suspected violations of the agreement and the disposition of all disputes, questions and complaints arising in connection with its performance or non-performance. The committee's decision is final, except for an appeal to the Secretary of Agriculture.

Under the agreement, the contracting growers apply for and consent to licensing by the Secretary of Agriculture.

WORLD'S FAIR GARDENS.

Areas Being Replanted.

Planting is under way in the gardens of the Horticultural Exhibition on Northerly island, A Century of Progress, Chicago, to accomplish a complete reconstruction of the four acres of model gardens in time for the opening of the fair. Many new exhibitors have entered this section, owing to the leadership of the Society of American Florists, which is reorganizing the horticultural display to make it representative of the progress in the past century.

With memories of the exhibition at Chicago in 1893 to beckon them, the planners made the first change in enlarging the display of pools, fountains and water gardens. The Italian garden, which occupied the center of the garden area last year, has been reduced by half and the portion near the Horticultural building devoted to a giant pool, where a collection of water lilies will be planted by the West Park commissioners, Chicago. Among them will be the Victoria regia, tropical lily growing to enormous size, with leaves four to six feet in diameter and strong enough to support a man. This lily was a feature of the world's fair of 1893, but has seldom been seen since in Chicago. Four large pools in the Italian garden are to be planted by the Missouri Botanical Garden, St. Louis, Mo., which has the finest water lily collection in this country. One of the varieties will be the famous yellow tropical St. Louis.

The rose garden is being enlarged and completely replanted with hundreds of tree roses and a large collection of new varieties. There will be 16,000 plants in this display, made by the Inter-State Nurseries, Hamburg, Ia., a much larger garden than the famous rose garden of the Wooded island which attracted so much attention in 1893.

The Chicago Cactus Society will make a cactus garden around the California hacienda. Charles Fiori, Prairie View, Ill., will make an Italian garden on the lake shore, and practical walks will be provided so that visitors may enter the garden and view the lake from the terminal terrace. The Victorian garden made by the park district of Oak Park, Ill., which attracted much attention last year will be rebuilt, with a different pattern for the beds.

The Lord & Burnham conservatory is finished. Dioramas, inside the exhibition hall, will be larger and more beautiful than last year. A console organ will be installed in the exhibition hall; troubadours will sing in the gardens; an orchestra will play in the balcony restaurant; these are the ideas of that showman, John A. Servas. There are many changes in the buildings; contracts are being let daily by George Asmus, manager, and James Sykora, comptroller.

The garden of Vaughan's Seed Store will be larger than last year. It will deviate from the accepted by meeting the requirements of the home garden. The Vaughan gardens will plant evergreens, shrubs, perennials and annuals that will thrive in the average home plot. There will be a cutting garden, among other things. There will be a succession of blooms in the current novelties and recent introductions in annuals.

Informal gardens will be made by Eugene A. de St. Aubin, Addison, Ill.; William O'Toole, Baraboo, Wis.; the Tunistra Landscape Co., Chicago, and Speicher & Gunderson, Chicago. The Lynch Landscape Co., Winnetka, Ill., will build an Italian garden; the civic groups of Joliet, Ill., will rebuild their rock garden, and the Oman Nursery, Prairie View, Ill., will construct a rock garden.

The Old Mill garden on the lake shore is being altered and replanted by Stauffer Bros., Hammond, Ind. William Tricker, Inc., Independence, O., will again display water lilies in the pool before the California hacienda. Kenneth Wright Bangs, Arlington Heights, Ill., will replant the formal garden which he exhibited last year, and Pearson-Daniels, Inc., Chicago, will exhibit a formal garden.

The location given over to the Forest Preserve of Cook county, Ill., on the lake shore last year is being made by Krider Nurseries, Inc., Middlebury, Ind., into a diversified garden, in which will be combined features and material typical of the gardens of many lands and nations. Intended to be a display to interest visitors, it will use both hardy and tropical plants and include German, English, French and Dutch garden areas. There will be a New England section, midwest section and California section. Thousands of plants from all parts of the world will be used in the borders.

FRUIT TREE INJURY.

(Concluded from page 4.)

did considerable damage to certain fruit blossoms.

Differences in bud hardiness were illustrated strikingly last winter in Illinois, Dr. Dorsey points out. Such peach varieties as Greensboro, South Haven, Carmen and Bell came through the winter in a much better shape than the more popular Elbert and J. H. Hale. This would indicate that for home plantings it might be advisable to include more of the hardier varieties. These would give more assurance of a crop in some seasons when the other varieties have been winter-damaged.

In orchards where the live buds are too few to be worth considering, Dr. Dorsey suggests that growers prune the trees back to the 2, or even 3-year-old wood. In cases where there are sufficient live buds to give a crop, pruning should be delayed until the set is evident, after which the nonbearing branches can be thinned out.

Where the bud survival is still lighter, it is advisable to leave all possible bearing wood in the trees so that full advantage can be taken of the live buds. Here, too, an application of some form of quickly available nitrogen should be made in order to increase the set. This is particularly worth while if applications were not made last year or if the growth conditions are at a low ebb.

OBITUARY.

Charles H. Hawks.

Charles Hamilton Hawks, one of the three founders of the Hawks Nursery Co., Wauwatosa, Wis., died last week. Mr. Hawks was the only survivor of the original triumvirate that founded the nursery business, the other partners having been Arthur A. Mosher and Theodore Ferguson.

Surviving Mr. Hawks are his widow, a brother, two daughters and one son.

Joy Morton.

Joy Morton, founder of the Morton Arboretum at Lisle, Ill., died at his home adjacent to the arboretum Wednesday night, May 9. He was 78 years old. Death occurred suddenly as the result of a heart attack.

Mr. Morton, who was chairman of the board of directors of the Morton Salt Co., founded the arboretum bearing his name in 1922 for practical and scientific research work in horticulture. Composed of about 419 acres, it is arranged for the convenient study of all species of the woody plants of the world that can endure the climate of Illinois. Many features of famous European gardens are incorporated in the arboretum.

Mr. Morton was born in Detroit, Mich., in 1855, the son of J. Sterling Morton, who was Secretary of Agriculture under President Cleveland and the originator of Arbor day, in 1872. Banking and railroad experience preceded Mr. Morton's entry into the salt business.

Edgar C. Ilgenfritz.

Edgar C. Ilgenfritz, manager of the Detroit, Mich., branch of I. E. Ilgenfritz' Sons Co., whose death April 12 was reported in the last issue of The American Nurseryman, was born in Monroe, Mich., in 1860. He was a son of I. E. Ilgenfritz, who founded the nursery business bearing his name in 1847.

After being in business with his father for many years, Mr. Ilgenfritz opened his own nursery, which he operated for some time. He finally moved to Detroit, reassociating himself with his father's firm. He did landscape work in the city for eighteen years and was well known by nurserymen and landscape architects for his fine knowledge of plant materials and excellent ability in design.

Mr. Ilgenfritz leaves his widow, Harriett; two sons, Lester M., New Rochelle, N. Y., and Harold D., a Detroit architect; two sisters, Miss Katherine Ilgenfritz and Mrs. R. E. Doolittle, New York, and a brother, Wilbur, Monroe.

E. P. Bernardin.

Funeral services for E. P. Bernardin, proprietor of the Parsons Wholesale Nurseries, Parsons, Kan., were held Thursday, April 12, in the First Church of Christ Scientist, Parsons. Flower tributes from friends near and wide, many in the trade, filled the chapel, the halls and several small rooms.

In addition to being active in business, as mentioned in the obituary notice of the May 1 issue, Mr. Bernardin was a civic leader. For many years he was a hard worker in the local chamber of commerce. He was also a member of the Rotary Club. He acted

"PAINESVILLE NURSERIES"



ASIDE from a complete line of general Nursery stock in every department, we specialize in:

FIELD-GROWN ROSES
FLOWERING CHERRIES
FLOWERING CRABS
FLOWERING THORNS
FLOWERING CORNUS
AZALEAS
DAPHNE CNEORUM
ETC.

MAPLES—Norway and Sugar.
SYCAMORE, ELMS, ETC.

Our production keeps abreast of popular demand.

Our products emphasize Quality.

Our prices speak for themselves.

The Storrs & Harrison Company

PAINESVILLE, OHIO

as chairman of Labette county, Kan., conciliation committee for the Farm Credit Corporation. In 1920, he served a term as representative in the state legislature, and he took an active part in the Republican politics in the county for years, being county chairman in 1930.

Besides his widow, Mr. Bernardin leaves a son, two brothers and a sister.

OPERATING WESTOVER NURSERY.

The publication of an item, "Liquidating Nursery Stock," on page 13 of The American Nurseryman for May 1, regarding the operation of properties of the Westover Nursery Co., St. Louis, Mo., has created some confusion, which is explained by the Westover Land Co., which purchased from the trustee in bankruptcy all of the assets and good will of the Westover Nursery Co. at a bankruptcy sale; these included two tracts of land.

One tract is located at 8100 Olive Street road, St. Louis county, Mo., and is now the headquarters of the Westover Land Co. The other tract is five miles west of the former and was acquired as part of the assets of the Westover Nursery Co., bankrupt, subject, however, to a deed of trust, which deed of trust was foreclosed by the

owner of the property; a corporation known as the Westmore Nursery Co. was formed recently and leased this tract from the owner who foreclosed. On this tract are trees, shrubs and other nursery items which the Westmore Nursery Co., mentioned in the April 26 issue of The Review, is selling.

The Westover Land Co., successor to the Westover Nursery Co., is still operating the nursery on the first tract of land at 8100 Olive Street road and it will continue to conduct a complete nursery business. It is not in any way connected with the Westmore Nursery Co.

THE Piedmont Nurseries, Geneva, N. Y., opened a retail store at Utica, N. Y., last month at Seneca and Liberty streets; Harry Freidlander is in charge.

THE H. A. Hyde Co., Watsonville, Cal., won eleven prizes, including the largest cash prize offered, at the California spring garden show, held recently at Oakland, Cal.

WITH "Plants and Their Proper Handling" as his topic, Rhea F. Elliott, president of the Elliott Nursery Co., Pittsburgh and Evans City, Pa., delivered an address at a recent meeting of the Franklin Garden Club, Franklin, Pa.

New Books and Bulletins

USEFUL PLANTS.

A successful attempt to add the human interest element to the study of botany as a science is made in "Plants Useful to Man," by Wilfred William Robbins and Francis Ramaley, the former being a professor of botany at the University of California, Berkeley, and the latter on the staff of the University of Colorado, Fort Collins. The publishers are P. Blakiston's Son & Co.

The material, about half of which is said to be adapted from "Robbins' Botany of Crop Plants," reviewed recently in these pages, furnishes a background of knowledge of the world's commercial plant products, appealing to those interested in the fields of botany, economics or agriculture. The book includes a discussion of common crop plants of the orchard, garden and field grown within the borders of the United States and also the more usual ornamentals. An account is given also of plants in tropical and subtropical countries which yield such materials of commerce as tea, coffee, spices, drugs, fibers and tropical fruits.

Of special interest to the trade, perhaps, is a chapter on ornamental plants, prepared to give information on the origin, and improvements made in these plants, many of which are familiar in use, but have little-known histories. Of the thousands of species of plants used for ornamental purposes, three in each of six categories of plant usefulness are selected for consideration. These groups include cut flowers, pot plants, spring bulbs, garden flowers, vines and shrubs.

Fourteen families of plants are made the topics for as many chapters, these including the rose and apple families, the plum family, table fruits and nuts, citrus fruits, palm and banana families, etc. Introductory chapters contain interesting data on the sources of cultivated plants, on the classification and naming of plants and on the lower plant groups, such as fungi, mosses and gymnosperms. Two chapters are devoted to cereal grains. Industrial products of vegetable origin are discussed in a chapter at the end.

The book is indexed and contains a bibliography for further study. Cloth-bound, it sells for \$3.

WATER GARDENS AND GOLDFISH.

The revised edition of "Water Gardens and Goldfish," by Robert V. Sawyer and Edwin H. Perkins, which was first issued in 1928, is a great improvement over its predecessor. The volume as previously printed was an interesting and valuable one, but its scope has been widened materially in this rewritten and greatly enlarged edition. Whereas the first issue contained only 112 pages, there are 260 in the present volume, with many new illustrations being added, the number now totaling around 120.

Four chapters have been added to the first part of the book covering water gardens, the section by Mr. Sawyer. These are "Pool and Rockery Combinations," "The Lesser Aquatic Plants," "Pond Folks" and "Commercial Possibilities." The foregoing added to "Waterlilies on a Balcony," "Dooryard

Water Gardens," "Concrete Pools," "Varieties of Waterlilies," "Sacred Lotus," "Victorias" and "Cultural Directions" provide a complete treatise.

The second part of the book on goldfish, by Mr. Perkins, will interest the tropical fish fancier and the dealer handling goldfish and tropicals, as well as the goldfish fancier and breeder, although tropicals are not discussed. However, much of the information contained in "Home Aquarium and Its Management," "Fish Foods," "Goldfish Diseases and Simple Remedies," "Goldfish Enemies," "Breeding Goldfish," "Wintering Goldfish," "Commercial Possibilities" and "Aquarium Construction" can be used by all of the persons mentioned. Two other chapters, "Popular Varieties of Goldfish" and "Goldfish in the Lily Pool," complete this section of the book.

Dealers of aquatic plants and fish will find this book of great assistance in answering the many questions always asked by customers buying this kind of merchandise. The price of the revised edition is \$2.

COVERS ALL PLANT TROUBLES.

A unique book, describing all the plant diseases on varied types of Connecticut plant hosts that have come to the notice of the author, Dr. G. P. Clinton, head of the botany department of the Connecticut agricultural experiment station, New Haven, for more than thirty years, and suggesting measures for their control, was published recently. This useful book, "Plant Pest Handbook, Part II, Diseases and Injuries," is the station's bulletin 358.

Dr. Clinton's work should prove an invaluable reference book to nurserymen. It is a summation of the knowledge acquired by the author at the Connecticut station and elsewhere during more than forty years of active work in the botanical field.

Dr. Clinton's book contains 280 pages and fifty illustrations. After a brief general discussion of fungi and other diseases and injuries of plants, the listing of hosts and the diseases and injuries to which they are subject is given in alphabetical order; there follow addenda where certain additional scientific observations of the author are recorded for the benefit of

those who study plant troubles from a critical as well as from a practical point of view.

The first volume of "Plant Pest Handbook, Part I, Insects," bulletin 344, by W. E. Britton, head of the entomology department, was published last year by the Connecticut station. It described the insect pests of plants and their control. Dr. Clinton's work includes not only plant diseases, but all injuries other than those caused by insects. The two volumes taken together make a comprehensive catalogue of the ills that affect plant life in Connecticut and a practical manual of control measures.

The "Plant Pest Handbook" brings up to date the spray calendar first issued by the station thirty years ago and revised many times thereafter.

BULLETINS RECEIVED.

"Forest Planting on the Farm," by S. N. Spring and C. H. Guise. Bulletin No. 226 of the extension department of Cornell University, Ithaca, N. Y. This 41-page illustrated pamphlet was first printed in February, 1932. Selection of stock, planting methods, notes on suitable trees and financial considerations of the work are discussed at length.

"Pollination and Blooming Habits of the Persian Walnut in California," by Milo N. Wood, pomologist of the bureau of plant industry, Washington, D. C. Technical bulletin No. 387, of fifty-six pages, issued by the U. S. D. A. This is a comprehensive study of the factors affecting the culture of the "English" walnut, as they relate to formation of blooms and setting of nuts. About twenty-four varieties are described in the bulletin.

FOLEY EQUIPMENT GUIDE.

An exceptionally complete presentation of commercial greenhouse structures and equipment used in connection with them is to be found in the copiously illustrated 144-page current catalogue of the Foley Greenhouse Mfg. Co., Forest Park, Ill. Views of scores of installations by this firm are reproduced, two pages being given to houses erected for nursery establishments. Foley's service in supplying plans for propagation and other special-purpose greenhouse structures is described. The equipment line contains such items of interest to nurserymen as coldframes, sash and covers. Up-to-date electric soil-heating installations are also mentioned.

!NOVELTY ROSES!

GOLDEN CLIMBER }
COUNTLESS VANDAL }

Leaders for
1933-34

BLAZE
MARY HART
SOUVENIR

Popularized by National Advertising

Ask for new Price List

JACKSON & PERKINS COMPANY, NEWARK, NEW YORK STATE

LABELS FOR NURSERYMEN
THE BENJAMIN CHASE COMPANY
DERRY, N. H.

E. P. BERNARDIN PARSONS, KANSAS Established 1870

Specializes in
**AMOR PRIVET, SHRUBS,
EVERGREENS**
and
SHADE TREES
for the great Southwest.

TAXUS CUSPIDATA CAPITATA THE ONLY HARDY UPRIGHT YEW Should supersede Arbor-vitae for hedge purposes

AZALEAS (Evergreen and Deciduous)
MAGNOLIAS Large Flowering
RHODODENDRON HYBRIDS
and other scarce items.

Send us your list of requirements with full particulars as to quantities, varieties and sizes.

BOBBINK & ATKINS
Rutherford, N. J.

C. R. BURR & CO., INC. MANCHESTER, CONN.

HEAVY SURPLUS ON SOME ITEMS
Write for Low Prices

Princeton Nurseries of PRINCETON, N. J. SUPERIOR Hardy Ornamentals

PIN OAKS
Lining-out sizes
6-9, 9-12, 12-18 and 18-24 inches
Large Trees for permanent planting
5-6, 6-8 and 10-12 feet
Arthur L. Norton Nurseries
Clarksville Missouri

PEACH PITS OUR PITS COMPARE FAVORABLY WITH THE BEST HOGANSVILLE NURSERIES Hoganville, Georgia

NEW AND RARE NURSERY STOCK
BRUCKENTHALIA spiculifolia. Hardy, heather-like plant, fragrant pink blossoms.
ILEX PERnyi. The new heavy-bearing holly.
DAPHNE Genesum. The new free-blooming strain; hardy; all sizes from liners to specimen plants.
Stock limited; place your order early.
THEO. ALBERT Centralia, Wash.

CATALOGUES RECEIVED.

(In writing for a copy of any of the catalogues reviewed below, please mention that you saw it described in The American Nurseryman.)

Buakirk's Aquarium, Independence, O.—A folder listing money-saving offers in tropical fishes, aquariums, aquatic plants and rare rock garden evergreens.

Shenandoah Nurseries, Shenandoah, Ia.—Bulletin No. 3, listing grade counts on a complete selection of nursery material and spring bulbs and aquatic plants.

Waterloo Bulb Farms, Waterloo, Ia.—Spring retail offers of gladiolus bulbs, classified into five groups, one of which features commercial cut flower varieties.

Key Route Heights Nursery Co., Oakland, Cal.—Price list of choice California and eastern dahlia varieties. The stock is described as pot-grown field-ripened roots.

Mount Arbor Nurseries, Shenandoah, Ia.—Bulletin No. 4, trade list of nursery stock in the usual large assortment featured by this firm. Supplies for spring nursery activities are also offered.

R. M. Kellogg Co., Three Rivers, Mich.—Bargain offers of plants, seeds and bulbs for amateur gardeners, featuring the azaleum described as the world's greatest flowering plant.

A. R. Pontius, Harbor Springs, Mich.—Price list of choice bulbs and hardy perennial plants. Gladioli are the major items, the variety Mr. W. H. Phipps being illustrated on the cover page.

Kelsey Nurseries, St. Joseph, Mo.—Spring bulletin No. 2, listing a complete assortment of nursery stock for the trade. In roses, grades 1, 1½ and 2 are offered. Perennials and spring bulbs have separate sections.

Verhalen Nursery Co., Scottsville, Tex.—Price list of boxed nursery stock in cold storage at St. Louis, Mo., chiefly roses, and of rose stock stored in bulk near Chicago, in lining-out grade. Wisterias, lilacs, quinces and buddleia are other items on the list.

Somerhausen Dahlia Gardens, Philadelphia—Descriptive price list, in folder form, of dahlias. The selection has been trimmed, states J. E. B. Buckenham, proprietor, so that it is now thoroughly up-to-date, yet representative. Honor-roll dahlias are indicated.

Mrs. Mava C. Balow, Harmon, Okla.—A descriptive circular of hardy wild flowers from western states, together with shrubs, trees and cacti. A note states that all the plants except the cacti have been subjected to weather of 10 degrees below zero and should stand much more with protection.

Fitchett Dahlia Gardens, Janesville, Wis.—A comprehensive illustrated price list of dahlias. Awards won at A Century of Progress at Chicago last year are itemized on a forward page. A collection of hand-painted lantern slides showing dahlias is in course of preparation at the gardens, it is stated.

J. P. Williams & Bros., Mutwal, Ceylon.—Listing of seeds and bulbs of tropical and semi-tropical plants. Palm seeds and orchid plants are itemized in a separate folder. They proffer information on tropical gardening on request, having had long experience as nurserymen and seed merchants.

George H. Ehrle, Clifton, N. J.—Booklet offering choice hardy perennials and plants for the rock garden, along with dwarf and slow-growing evergreens and trees and shrubs. Only stock ready in quantity is itemized here. Many choice plants from Europe are now being propagated at the firm's establishment, it is said.

E. J. Snyder, West Milton, O.—Trade list of perennials and rock plants. Besides a group of transplanted field-grown specimen plants, there is a list of lining-out seedlings and divisions for fall sales. Three new double pyrethrum are featured, as are a group of ten selected sedums and a half-dozen sempervivums chosen for their distinctive coloring.

Perry's Hardy Plant Farm, Enfield, England.—"Water Plant Manual," consisting of eighty-four pages, profusely illustrated with over 100 halftones and diagrams. It describes, giving cultural directions also, over 800 water and moisture-loving plants. Full directions for constructing and maintaining ornamental pools, and concise information as to the management of aquariums, fish, etc., are likewise given.

Joseph Brock & Sons, Boston, Mass.—The usual superb annual catalogue of this firm, listing literally everything for the farm, garden and lawn. The forward section is devoted to flower and vegetable seeds, agricultural seeds and bulbous items. Thirty-six pages describe the products of the firm's nursery department at Lexington. Color work is used to advantage, the cover cut being especially striking.

Bodger Seeds, Ltd., El Monte, Cal.—1934 contract and general price list, consisting of 128 pages, illustrated throughout with superlative half tones, that are more numerous than in any previous issue. Illustrations and copy have alike been planned. It is stated, for adaptation to retail catalogues. *Nasturtium Scarlet Glean* and *Glean Hybrids* are designated the introductions extraordinary for 1934. Among the other recent novelties are wilt-resistant asters, a new statice, a quilled sinula and an early-flowering corn along with several other items that have received recognition from the all-American flower seed selection committee.

Curtailed Production Adverse Weather Increased Demand

all have helped to
create a very

ACUTE SHORTAGE of LINING-OUT STOCK

We have no surplus. Some varieties are now sold up. If you need any stock this Spring to complete your plantings—you should order now.

All unsold stock listed in circular 342; send for it now.

NAPERVILLE NURSERIES
DuPage County
NAPERVILLE, ILLINOIS

HILL'S EVERGREENS

Complete assortment of lining out sizes. Also larger grades for landscaping.

Send for our wholesale catalogue.

D. HILL NURSERY CO.
EVERGREEN SPECIALISTS
Largest Growers in America
Box 402 DUNDEE, ILLINOIS

PRIVET and BERBERIS Splendid Stock

Write for Special Quotations

LESTER C. LOVETT

Milford Delaware

Canterbury Boxwood

Buxus suffruticosa and *B. sempervirens*. Selected uniform plants; bushy and foliated to center; masses of fibrous roots. Finished specimens from 4 inches up, ready for quick shipment. Prices lower, plants larger. Ask for special list.
CANTERBURY NURSERIES, Inc., Box A, Easton, Md.

LINING-OUT STOCK

CONNECTICUT VALLEY GROWN

Write for List

C. E. WILSON & COMPANY, INC.
Manchester, Conn.



EVERGREENS

For Seventy years growers of Quality Evergreens Lining Out Stock a Specialty Spring Trade List Now Ready

EVERGREEN NURSERY CO.

Established 1864 STURGEON BAY, WIS.

The Current Season

W. N. Craig's Notes from New England

SPRING BUSINESS.

There is a marked improvement in the nursery business this spring, judging by reports so far received. The severe winter along the eastern seaboard had much to do with this, as it created a remarkable demand for replacements of dead or dying stock. However, entirely apart from this, there is a much better feeling abroad, and more money is circulating.

After a winter that lasted from late November until April, with virtually no outdoor work possible for over one-third of the year, the nursery trade is having a feverish rush of business which should continue for several weeks. The nurserymen in Europe have different conditions. In Great Britain, Holland, France and other countries fall planting starts in late September. The winters are customarily mild and only for brief intervals is there any delay of planting operations in December, January and February. The growers there have about six months of planting, against four here during the year, if one considers October and November as planting months. Insofar as woody plants are concerned, we are progressing slowly in striving to instill in amateurs' minds the advantages of fall planting for many items, to relieve the spring rush. With perennials we are making headway, but we should make more effort to encourage fall planting.

METHODS OF MERCHANDISING.

A profound change has come over merchandising methods in the past two or three years, since the spread of the wayside sales stands. That the stands have come to stay seems assured. Not only fruit, vegetables and cut flowers are handled on these stands in increasing quantities, but tender and hardy plants are being featured more and more. Some of these stands are pleasingly designed and have employees in charge who can give practical advice, who see that plants are carefully watered and who really know the names of what they are selling. They, however, are still the exception.

The bigger nurseries, which formerly scorned this method of disposal of their goods, fearful that the roadside stands and department stores were getting money they themselves might just as well have, are beginning to bid for the business. Of course, catalogue prices are scrapped when this kind of selling gets under way, and in newspapers and over the air one sees and hears offerings of evergreens and other stock at prices that do not begin to meet production costs. As demand lagged in late years, growers deemed it better to salvage what they could, rather than burn the stock, and the desperate need of cash made prices come down with a thud. Perhaps we should not find fault with stores' and wayside stands' selling this stock, as those who start procuring plants in this way will, in many cases, become purchasers of better stock as they find out how expensive most of the "bargains" turn out to be.

THE ROSE SITUATION.

It is evident from the frantic demand for hardy roses this spring that the winter's toll of these plants was heavier than had been anticipated. It is safe to assume that the big producers will have little left on their hands by the end of May. Prices of the standard hybrid teas have been steadily hardening for some weeks, and retailers should do the best business in many years. For such excellent varieties as Ville de Paris, Etoile de Hollande, Lady Margaret Stewart, Mme. Butterfly, Margaret McGredy, Mrs. E. P. Thom, Betty Uprichard, Mrs. Henry Morse, Edith Nellie Perkins, Mme. Edouard Herriot, Golden Dawn, Talisman, President Hoover and others the call was never so strong. There are some varieties like Pernet, Columbia, Padre and others which are less popular than formerly.

Among the hybrid perpetuals, which are hardier and freer from mildew and black spot than are the hybrid teas, there is a good demand for Frau Karl Druschki, George Ahrends, Mrs. John Laing, Ulrich Brunner, Prince Camille de Rohan, Captain Hayward and Mme. Albert Barbier. The severe winter has created an increased demand for this type, the members of which possess better fragrance than the hybrid teas and greater vigor and hardiness and require less winter protection.

Polyanthas are growing in favor, and Else Poulsen, Kirsten Poulsen, Gloria Mundi, Golden Salmon Improved, Gruss an Aachen, Ellen Poulsen and the old Mme. Cecile Brunner are being much favored.

CHEAP ROSES.

During May and the early part of June, large quantities of roses which have been growing in beds or benches for several years and which were formerly burned are salvaged. After being rested they are dug up, headed back and tied in bundles, with wet moss about their roots. They meet with a large sale in stores, at roadside stands and in some nurseries. Too often the plants are sold as "strong 3-year-old field-grown roses," and unsuspecting amateurs buy them at the prices regularly charged for field-grown stock. The writer thinks the material is worth as much as geraniums, which retail for \$2.50 to \$3 per dozen; a bed of these roses will provide a great deal more pleasure than geraniums, if given careful treatment, and quantities of good flowers will be produced for use in the home. There is every reason why this class of roses should be increasingly used in this way, being scrapped at the end of the season, as they are of little value another year.

Such varieties as Butterfly, Rapture, Premier Supreme, Templar, Talisman, Double White Killarney, Briarcliff and the Columbia varieties are not in all cases good garden roses, but handled as a one-season crop, they are to be recommended over the thirds and culls of field-grown roses customarily offered at bargain prices.

AMERICAN NURSERYMAN

CLIMBING ROSES.

There has been a marked change in the demand for roses of the climbing, rambling and pillar class in recent years. Today the place of the old Crimson Rambler has been usurped by superior reds, including Paul's Scarlet. Dorothy Perkins has been pushed largely into the discard by the larger-flowered varieties like Dr. Van Fleet and Mary Wallace. The small yellows formerly grown like Gadenia, Aviateur Bleriot and others are still useful, but cannot compare with Mrs. Arthur Curtis James, Emily Gray and Paul's Lemon Pillar.

The Captain Thomas hybrids, after the past winter, are useless in the east, but Mme. Gregoire Staechelin, New Dawn, Blaze, Scorecher, Kitty Kinnimonth, Jacotte and American Pillar can be depended on. It will not be many years before there will be an entirely new race of hardy everblooming climbers apart from the so-called climbing varieties of hybrid teas, which are an uncertain quantity unless laid down and buried each season. The demand for climbing roses increases each year, and

FOSTER NURSERY COMPANY

INC.

Fredonia, N. Y.

Wholesale Growers of Grapevines, Currants and Gooseberries.

Write us for prices.

In the heart of the Chautauque Grape Belt.

ROSES

We still have a few thousand fine H. T. Roses in fine condition.

FREMONT NURSERY
Fremont, Ohio

SEEDS

HERBST BROTHERS, Inc.

Agents for T. SAKATA & CO.

92 Warren St. NEW YORK

Dormant, Field-grown

Rosebushes

HOWARD ROSE CO.

Hemet, California

MAHALEB SEED

Get our fresh, local seed; stratify it early, before imported seed can even be shipped, and secure maximum results.

WASHINGTON NURSERIES
Toppenish, Wash.

American Bulb Company

Importers and Growers of Dutch Bulbs, Cannas, Tuberoses, Gladioli, Hardy Lilies, Manetti, Lily of Valley, Sphagnum Moss.

Send for Free Catalogue
31-37 W. 27th St. 1335 W. Randolph St.
New York City Chicago, Ill.

Quick Shipment — No Delays BURLAP SQUARES

Dutch type, for balling Evergreens. Most convenient and economical. 8 sizes from 14x14 inches to 40x40 inches, in bales of 500 squares.

CHINESE TONKIN CANES

For staking small trees, shrubs, evergreens, dahlias, etc. 8 convenient sizes from 2 ft. to 8 ft.

GRANULATED PEAT

Finely pulverized horticultural grade in bales containing 22 bushels or more. Carloads or less quoted f.o.b. New York or your own city.

RAFFIA

For grafting, budding and tying up. Red Star, XX Superior and other dependable brands.

INSECTICIDES

Send your orders and inquiries for dependable service and quality to

McHUTCHISON & CO.

95 CHAMBERS ST., NEW YORK



Grass Seeds
None Better None More Bulk

Single Bales, \$2.50 bale
10 bales, \$1.75 bale 50 bales, \$1.60 bale
25 bales, 1.65 bale 100 bales, 1.55 bale
Pulv. Sheep Manure... \$2.50 100 lbs.
Pulv. Cow Manure... 2.50 100 lbs.
Pulv. Bone Meal... 2.50 100 lbs.
\$1.75 a Big Bag Full—Shute's Special
Mixture Pulv. Cow Manure and Pulv.
Peat Moss. The Correct Fertilizer that
will make Grass and Flowers grow.
F.o.b. Philadelphia.
"Ask the Man We Sell."

E. L. SHUTE & CO.

616 W. Upsal St. PHILADELPHIA, PA.

Always Consult The Nurserymen's Credit Guide Before you ship.

NATIONAL NURSERYMEN'S CREDIT BUREAU, Inc.
612 N. Michigan Ave., Chicago



No. 13 Paper
Strap Label
75c Per 1000
(Wgt. 1 lb. per M.)
Inexpensive — durable.
(Prices F.O.B. Newport, Ky.)
No. 50—Paper (Wired) Label, Wgt. 2 lbs. \$1.40 per M.
No. 45—Celluloid Pot Label, Wgt. 3 lbs. \$2.25 per M.
Wood or Copper Labels—All Styles—LOW PRICES.
Special prices on Printed Labels upon request.
Write for FREE SAMPLES and LITERATURE.
National Band & Tag Co., Inc., Dept. 201, Newport, Ky.

buyers are more particular as to the varieties they want.

The excellent Annual of the American Rose Society should be in the hands of everyone in the trade who handles roses. It contains a wealth of practical articles which it will pay even the busy nurseryman to study.

SHRUBS FOR CITY GARDENS.

Last fall Miss Alice L. Dustan completed an interesting thesis under the supervision of Prof. R. W. Curtis, at Cornell University, on "Woody Ornamental Plants for Northern City Gardens." One hundred and twenty-five leading nurserymen, landscape architects and park superintendents, in Boston, New York, Philadelphia, Pittsburgh, Cleveland, Detroit, Chicago and Minneapolis, responded to a lengthy questionnaire and assisted in making up the lists of plants which can be grown under city conditions. So much interest has been taken in these lists by the persons assisting in making them that they are being given to the trade in Donald Wyman's mimeographed "Nursery Suggestions" issued from Cornell. Though the lists are not "final" by any means, they are composed of plants suggested by many men who have been closely connected with city planting for years.

A list of smoke-enduring plants for use in city gardens follows:

Acanthopanax pentaphyllum	Magnolia Soulangeana
Ailanthus glandulosa	Magnolia stellata
Ampelopsis species	Morus alba pendula
Aralia spinosa	Pachysandra terminalis
Asalea amena	Philadelphus coronarius
Berberis Thunbergii	Physocarpus opulifolius
Bignonia radicans	Polygonum species
Catalpa bignonioides nana	Prunus subhirtella
Celastrus scandens	Pyrus communis
Cornus mas	Quercus Robur fastigiata
Cornus sanguinea	Rhamnus cathartica
Cornus stolonifera	Rhodotypos kerrioides
Crataegus cordata	Rhus species
Cydonia japonica	Ribes alpinum
Deutzia scabra	Ribes odoratum
Elaeagnus angustifolia	Sambucus canadensis
Elaeagnus longipes	Sophora japonica
Evonymus species	Sorbaria arborea
Forsythia species	Spiraea Bumalda
Hedera helix	Spiraea Vanhouttei
Hibiscus syriacus	Symphoricarpos racemosa
Hydrangea species	Symphoricarpos levis
Ilex crenata	Symphoricarpos vulgaris
Ligustrum species	Syringa vulgaris
Lonicera species	Viburnum Opulus
Lycium hallimifolium	Vitis minor
	Vitis fruiting varieties
	Wistaria sinensis
	Yucca filamentosa

A list of shade-enduring plants for use in city gardens is as follows:

Acanthopanax pentaphyllum	Lonicera japonica
Acer Negundo	Halliana
Aesculus parviflora	Lycium hallimifolium
Amelanchier laevis	Magnolia stellata
Ampelopsis species	Mahonia Aquifolium
Aristolochia Sipho	Oxydendron arboreum
Aronia arbutifolia	Pachysandra terminalis
Asalea amena	Pieris floribunda
Benzoin estivale	Pieris japonica
Celastrus orbiculatus	Polygonum Aubertii
Celastrus scandens	Rhamnus cathartica
Clematis paniculata	Rhododendron species
Cornus species	Ribes alpinum
Evonymus japonica	Symphoricarpos racemosa
Evonymus radicans	Symphoricarpos levis
Forsythia species	Symphoricarpos vulgaris
Hamamelis virginiana	Vaccinium corymbosum
Hedera helix	Vaccinium pennsylvanicum
Hydrangea petiolaris	Viburnum acerifolium
Ilex crenata	Viburnum dentatum
Kalmia latifolia	Viburnum Lentago
Leucothoe Catesbaei	Vinca minor
	Zanthoxyla apiifolia

THE Treedale Farms, Mars, Pa., opened two sales yards at Pittsburgh April 15, with Harry Troupe manager.

B. M. WICHERS & SON, who operated a florists' seed and nursery business at Gretna, La., have moved to their nursery at Marrero, La., doing business now as B. M. Wichers' Son.



BETTER BECAUSE

So clean—uniform in texture—
does not cake—no breaking up
required—porous—more absorbent—much more economical.

• Swedex •

The new Superfine—finest granulation and quality on the market.
Big saving. Investigate!

Superior Quality Guaranteed

Swedish Peat Moss

Look for the CERTIFIED seal on each bale. It means VACUUM CLEANED—excessive fibre and impurities removed.

For booklet—distributor—WRITE
Premier Peat Moss Corp.
150 Nassau St., New York

Turn Stock into Cash NOW

Demand is increasing as spring advances.

Shortages are appearing in some items.

The trade is looking for sources of stock.

You can move yours by telling what you have in

THE AMERICAN NURSERYMAN

One-inch display space: \$2.25

Classified ads: 20c per line
(Minimum order, \$1.00)

POSITION WANTED

Man with excellent education, thoroughly experienced in nursery sales and landscape work and an expert radio speaker, desires position with future. Address No. 4, American Nurseryman, 508 S. Dearborn St., Chicago.

Herbaceous Perennials

Comments on Less Common Varieties

HEPATICAS.

Plant growers have a responsibility which is all too seldom recognized. We all complain of the backwardness of American horticulture, particularly of the rut we are in so far as plant material is concerned. Yet what are we doing to relieve the situation? We continue to grow and sell the same plants year after year entirely oblivious of the thousands of others of equal or superior merit. This is especially true of plants growing right under our feet.

Many American dealers list hepaticas, but how many have taken the trouble to segregate even the color varieties, not to mention the double forms? These last-named are as scarce in American gardens as the rarest of alpinas, though the double varieties are no harder to grow than the hepaticas that dot every spring woodland. And hepaticas do not need a woodland to make them comfortable, for they will thrive in the part shade of a border or a slope in the rock garden that is not too sunny. Most assuredly, a market awaits a properly advertised stock of named hepaticas, especially the double ones.

FILIPENDULA PURPUREA.

All of the filipendulas, or meadow-sweets, are graceful border plants, and *Filipendula purpurea* is the best of the entire lot that I have seen, though, to be truthful, it is also the tenderest. Here in the north we cannot depend upon its going through the winter, even under a mulch, unless the snow lies deep over it. Notwithstanding that fact, its ferny foliage and deep pink flowers in panicle cymes on bright red stems all during June and July are worth a little effort to keep. And I can imagine few finer midsummer border plants for sections where the winter temperatures are a little more moderate. There are also a white form, alba, and one with white flowers and showy red stamens, all on plants two to four feet high.

From June until midsummer, the spirea-like flowers of the meadow-sweets swaying above their ferny foliage make one of the sweetest pictures in the hardy garden. To obtain maximum results, filipendulas should have, with one or two exceptions, a moist soil. They

are, however, amenable to common border treatment, doing passably well in fairly dry situations, provided the soil is rich in humus. Filipendulas may be grown from spring-sown seeds in a frame where moisture conditions are always under control. It has been my experience that seeds of all filipendulas are tardy getting out of the ground. The plants are said to be more easily grown from seeds sown in the fall in a cool greenhouse. Vegetative reproduction is readily accomplished by division of the clumps.

Without going into the botany of the subject, it may be well to say a few words about the naming of the plant. Some catalogues, as well as some botanists, still retain the old name of spirea for the species under discussion, making it *Spiraea purpurea* or *S. palmata*, and still others call it *Ulmaria purpurea*.

GILIA CORONOPIFOLIA.

I shall not enter into a discussion of the correct name of *Gilia coronopifolia*, for I know no more about it than any other gardener, but a few of the names it may be found under should be mentioned. Bailey calls it *Gilia coronopifolia*, with the admission that it may be *G. rubra*, and it has been described and is now currently known among one school of botanists as an ipomopsis, being variously called *Ipomopsis elegans*, *I. sanguinea*, *I. aurtiaca* and possibly otherwise. It is the standing cypress of old-time gardens, which, for an inexplicable reason, the makers of "Standardized Plant Names" changed to *Texasplume*. Whatever the correct name may be, the plant is a fine garden ornament, though biennial. It does, however, perpetuate itself in gardens that are not kept too clean and is so persistent in places that it has escaped from gardens, lighting up the roadsides with its brilliant scarlet trumpets. As generally accepted, *coronopifolia* is the scarlet *gilia*, growing from two to three feet (I have seen it five feet under good culture) high. The variety is perfectly easy to grow in any good garden soil in sun or part shade.

AUBRIETIAS.

Judging from the numerous complaints about the failure to grow good aubrietias that are of fairly permanent value in the garden, it is apparent that the genus gives gardeners not a little trouble. The usual plaint is that, although the plants grow well enough during the first year, they fade out during the winter and spring, particularly the latter, when they commence to die at their centers and often pass out entirely. Tracing a number of these complaints to their sources, I learned that most of the trouble developed in gardens and nurseries that were built on clay soil in sections of little snow. Such a combination produces a condition decidedly detrimental to the well-being of an aubrietia, a plant that demands perfect drainage and freedom from winter damp.

AMERICAN NURSERYMAN

The commercial grower of aubrietias who has experienced the trouble outlined here will probably find relief by growing his plants in raised beds of sandy soil. In the absence of sand, it would probably be the part of wisdom to top-dress the bed with gravel. If you have a show garden, display your aubrietias in the wall. Here in north Michigan in our light sand, we can grow aubrietias in any position where they get sunshine, even on the flattest surface, but they are always better in a wall. They are among the best of easily grown plants for a vertical wall facing east, south or west and there attain their greatest perfection.

Aubrietias are as easy as radishes to

CLASSIFIED ADVERTISING

NURSERY STOCK

Roses.
Boxed, in cold storage, f.o.b. St. Louis, Mo. Each
No. 229 100 Chaplin's Pink Climber (Paul's Scarlet type), xx.....15c
215 320 Chaplin's Pink Climber, No. 1 grade.15c
250 240 Dr. W. Van Fleet, bush, No. 1.....15c
297 240 Stachelin (Spanish Beauty), lively pink, xx.....15c
301 280 Stachelin (Spanish Beauty), No. 1.....15c
258 480 Roserie, dark pink Tausendachen, No. 1.....14c
295 120 Thelma, improved Dorothy Perkins, xx; 60 Yellow Rambler, No. 1; 10 Scorcher, No. 1; 55 Cl. Amer. Beauty, xx.14c
319 240 Amelle Graveraux, red H. Rug., No. 1.....15c
338 360 Amelle Graveraux, No. 1½.....10c
257 340 Conrad F. Meyer, pink, No. 1.....15c
347 480 Hanna, red, No. 1½.....7c
351 570 Hanna, No. 2; 150 Sir T. Lipton, white, No. 2.....5c
330 240 Agnes, yellow, xx.....15c
311 320 Sir T. Lipton, No. 1.....8c
340 480 Sir T. Lipton, No. 1½.....6c
332 480 Dr. E. M. Mills, yellow, No. 1.....6c
335 480 Dr. E. M. Mills, No. 1½.....6c
318 320 Harrison's Yellow, No. 1.....15c
276 360 Mme. Plantier, white, No. 1.....12c
314 60 Amelle Graveraux, 15c; 80 Harrison's Yellow, 15c; 80 Sir Thomas Lipton, 8c; 40 Agnes, 15c; 40 Ruskin, 15c, all No. 1...
344 220 Belle Portevine, pink, 7c; 80 Agnes, 10c; 100 Sir Thos. Lipton, 7c, all No. 1½...
371 240 Buddleia Alternifolia (hardy Butterfly Bush), 18 to 24 ins.....12c
361 360 Wisteria Chinensis, 12 to 18 ins., 2 stems, 12c; 270 same, 1 stem, 10c.....
Other boxes in various grades. Will send full list. We cannot change quantities. Cash with order, please.

Verhalen Nursery Co.,
Scottsville, Tex.

Hansen Bush Cherry. The newest in early-bearing cherry fruits. Dwarf growing. Enormous yielding. Extremely hardy and drought-resistant. Large, choice eating fruits. Delicious preserves. Trial, 3 large 2-year, \$1.00; 12 large 2-year, \$2.50; 12 small, \$1.50; all prepaid. Send for list of newest plant introductions.

Carl A. Hansen Nursery, Brookings, S. Dak.

Franklinia alatanaha (Gordonia) 10 100
12 to 15 inches.....\$10.00 \$75.00
1½ to 2 feet, B&B.....22.50 200.00
2 to 3 feet, B&B.....35.00 300.00
3 to 4 feet, B&B.....45.00 400.00
Write for Wholesale List on other specialties.
Joseph J. White, Inc., New Lisbon, N. J.

Water Lilies, Aquatic Plants and Goldfish for pools. Lowest prices. Prompt service. Large illustrated catalogue sent free to dealers. Use your business paper in writing.

Lakeview Ponds,
5597 Colerain Ave., Mt. Airy, Cincinnati, Ohio.

California Privet, Lombardy Poplars, Oriental Planes, Shrubbery, Evergreens, Perennials, etc., at special prices.

Westminster Nursery, Westminster, Md.

Tritoma Pfizeri, strong field divisions, \$5.00 per 100, \$45.00 per 1000.

Archias Floral Co., Dept. N, Sedalia, Mo.

NURSERY ACCESSORIES

Nurserymen! Make and sell cement stepping stones at big profits. Easy with our improved, easy snap-off forms. Set of three, full directions, \$2.75, express paid.

Des Moines Cement-Art Co.,
1719-21 Mondamin Ave., Des Moines, Iowa.

Nursery Tools, Leonard Full-strapped Spades, Kunde Knives and Shears, Budding and Grafting Supplies. Free 30-page wholesale catalogue illustrates 600 tools.

A. M. Leonard & Son, Piqua, Ohio.

FOLEY GREENHOUSES



ALL NURSERYMEN will want this new, big, Free Book on Modern, Up-To-Date Greenhouse Construction. 150 pages—1100 illustrations showing many nursery installations. Send post card or this coupon.

The Foley Greenhouse Mfg. Co., Am. No. 5-15-34
7713 Van Buren St., Forest Park, Ill.

Gentlemen: Send Big Free Book to

Name

Address

City..... State.....

Thinking of building greenhouse

Width..... Length.....

grow from seeds, though one cannot hope to get a uniform product of named varieties by this method. That statement can be verified by examining any lot of Crimson King, Mrs. Lloyd Edwards or any other named form which has been grown from seeds. To get these superior forms (and to me, aubrietia is one of the few genera in which the garden forms surpass the species in interest), it is necessary to resort to vegetative reproduction. Happily, cuttings root without any great trouble. Cuttings of new growth may be rooted at almost any season, though I like best to shear the plant as soon as the flowering period has passed out, to use the abundance of new shoots which follow this operation.

ILLINOIS HIGHWAY PLANTING.

Robert Kingery, director of the department of public works of the state of Illinois, has announced two major highway landscaping projects for the Chicago metropolitan area to climax a season of intensive roadside planting.

North avenue from the Chicago city limits to Barrington, Ill., and the Skokie road from the Lake county line to Elston avenue are to be beautified with trees, shrubs, sod and grass seedling. Preliminary grading has started.

The work is to be financed with \$78,486 from the \$17,500,000 of "easy money" allotted to Illinois for road purposes by the public works administration. Phelps Vogelsang, engaged March 1 as landscape architect of the highway department, said that the general scheme for the planting calls for native trees and shrubs in informal arrangements resembling their natural growths.

This has been the scheme employed in planting 160,000 trees on the highways of Illinois since the first of the year. Some of this work has been done by the highway department, some by the Civil Works Administration, some by the Civilian Conservation Corps and some by women's clubs and other civic groups.

Some of the trees and shrubs were transplanted from forest preserves and state institutions. From private nurseries the state obtained 610,318 trees and 160,622 shrubs at a cost of approximately \$5,000.

"We feel justified in using road money for highway beautification," said Mr. Kingery, "because much of the gasoline tax revenue is derived from pleasure traffic appreciative of an improvement in the appearance of the state routes."

An allotment of \$39,000 has been set aside to maintain the new trees and shrubs on the highway this summer. They will be watered and fertilized, and, under a practice new in Illinois, will be wrapped in paper to protect them against borers and sun scald.

MONTGOMERY ROSE PATENTED.

A hybrid tea rose was granted a patent April 24, according to Rummel, Rummel & Woodworth, Chicago patent lawyers, as follows:

95. Hybrid tea rose. Alexander Montgomery, deceased, late of Amherst, Mass., by Robert J. Montgomery, executor, Amherst, Mass., assignor to the Montgomery Co., Hadley, Mass. One claim. A variety of hybrid tea rose characterized particularly by the distinctive buff orange color of its flowers, its vigorous and profuse foliage of light green color, its superior growing and reproduction habits and its resistance to diseases.

Greatest Little Tractor on Earth!



*Works where others can't—
Does what others won't!*

For Once Read This Advertisement Without the Thought That Someone Is Trying to Sell You Something!

Instead, Ask Yourself if This Isn't What You Need.

For years we've told you about the GRAVELY Tractor. And, how there are certain exclusive features that make it ideal for the flower grower's needs. WE WANT TO PROVE THIS.

Your cultivating season is here. We want your permission to tell you all about the GRAVELY. A post card will bring the facts.

Gravely Motor Plow & Cult. Co.

Box 553

Dunbar, W. Va.

WRITE TODAY FOR FREE CATALOG

THE MODERN NURSERY

A New Book for Every Nurseryman

A Guide to Plant Propagation, Culture and Handling

By Alex Laurie and L. C. Chadwick,
Department of Horticulture, Ohio
State University. 110 illustrations.
70 tables, 552 pages, waterproof
fabrikoid binding. Price, \$5.00.

From their own experience in commercial nursery practice, from results of experiment and research, and from their wide acquaintance with modern nursery methods, Professors Laurie and Chadwick have written this complete manual covering every branch of nursery practice.

The book provides complete reference for everyone concerned with the propagation of plants, giving full descriptions of all methods and many tables which indicate at a glance the treatment to give any particular plant. It also discusses fully and completely tools, tillage, planting, transplanting, digging, grading, labeling, pest control, soils, fertilizers, storage, advertising, selling, and every other phase of nursery management.

Photographs and drawings, many of well known commercial nurseries, illustrate the latest methods.

SEND FOR YOUR COPY NOW!

AMERICAN NURSERYMAN,
508 S. Dearborn St., Chicago.

Send me one copy of THE MODERN NURSERY,
for which remittance of \$5.00 is enclosed.

Name _____

Address _____

City _____ State _____



Put Real Pressure Back of Your Spray

That is what Mr. R. K. Putnam, Rutland, Mass., did with his Junior Leader OSPRAYMO, purchased about 1923-4, and still going strong. "I have put 138,000 gallons thru the rig in the last 3 years," writes Mr. Putnam (Jan. 8, 1934). "I have speeded up the rig till it handles a Quad at 300 lbs. pressure." Such spraying produces results unattainable with low pressure.

OSPRAYMO Sprayers have many exclusive features. Get posted on our latest models. They are pictured and described in our FREE Catalog of Orchard and Field Sprayers. Write for your copy today.



FIELD FORCE PUMP CO.
Dept. 36 Elmira, N. Y.

Makers of Sprayers for
More Than 50 Years.

Uniform High Pressure Guaranteed

BATAVIA JAVA TWINE

Soft • Strong
Uniform



Considering both cost and satisfaction, this twine has no real rival for nursery use. Write for sample and prices.

GEO. B. CARPENTER & CO.
440 N. Wells St. Chicago, Ill.

MORE

than fifty nursery establishments
are using

FELINS Tying Machines

One nursery alone is using seventeen
There is a reason—

FELINS

2950 N. 14th St. Milwaukee, Wis.

SHUNK INSECTICIDE DUSTER

A most amazing machine for Insect Control,
Field and Orchard Dusting.
Write for catalogue and prices

SHUNK MANUFACTURING CO.
Dept. H., Bucyrus, Ohio

Write for Samples and Price List

SAXOLIN

DUPLIX
CRINKLED

COSTS
LESS THAN
BURLAP

DOES A
BETTER JOB

MAKES
CLEAN - NEAT
BUNDLES

KEEPS THE
MOISTURE IN



We will send full size working samples that will prove in your own shipping room that **SAXOLIN** is superior to any other wrapper for retaining dirt and moisture around the roots and delivering a clean, attractive package.

SAXOLIN is two sheets of kraft paper cemented with asphalt filler and crinkled to stretch and conform to shape of bundle.

It's waterproof—tough and easy to handle.

If you are using any special size material for wrapping tell us the size and we will send samples. Try **SAXOLIN** now and be ready for your next shipping season.

CHASE BAG CO.

Specialty Dept. - Cleveland, Ohio

MAIL THE COUPON FOR TEN-DAY TRIAL OFFER ON PARAGON SPRAYERS!



Spray your trees, shrubbery, nurseries and gardens; white-wash your greenhouses; disinfect your poultry houses and stock pens with a Paragon, the only Sprayer that never permits the solution to settle in the container or to clog at the nozzle. Uniformly higher pressure with less effort. Longer hose, more pipes and extra nozzles. Wheelbarrow, barrel or power type. Any size. Try it for ten days. Bargain price if you keep it. Mail the coupon today.

The
**Campbell-Hausfeld
Company**
503 State Ave.
Harrison, Ohio



Paragon
No. 3
7 1/2 ft. pipe
10 ft. hose
3 nozzles

1 or 2 wheel truck

Send your ten-day trial offer to

NAME.....
POST OFFICE..... STATE.....